

REMARKS

Claims 23 to 25 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 18, 20 to 26 and 28 to 30 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,643,873 to Hayes (hereinafter "Hayes"). Claim 19 was rejected under 35 U.S.C. §103(a) as being unpatentable as obvious over Hayes. Claims 27 and 31 were rejected under 35 U.S.C. §103(a) as being unpatentable as obvious over Hayes, in view of U.S. Patent No. 3,995,000 to Butler et al. (hereinafter "Butler"). Claims 32 and 34 were rejected under 35 U.S.C. §103(a) as being unpatentable as obvious over Hayes and further in view of U.S. Patent No. 6,449,034 to Marchand et al. (hereinafter "Marchand"). Claim 33 was rejected under 35 U.S.C. §103(a) as being unpatentable as obvious over Hayes in view of U.S. Patent No. 5,841,200 to Bauer et al. (hereinafter "Bauer").

Claims 18 and 23 are hereby amended to more clearly and particularly point out the invention. Claims 21, 27, 28, 30 and 28 are hereby amended to correct grammatical errors. The specification is hereby amended to correct a typographical error.

Reconsideration of the application based on the foregoing amendments and the following remarks is respectfully requested.

35 U.S.C. §112 Rejections

Claims 23 to 25 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 23 has been amended to delete the term "surface of low roughness."

Withdrawal of the rejection of claims 23 to 25 under 35 U.S.C. §112 is respectfully requested.

35 U.S.C. §102 Rejections

Claims 18, 20 to 26 and 28 to 30 were rejected under 35 U.S.C. §102(b) as being anticipated by Hayes.

Hayes discloses “uranium dioxide powder [which is] produced by a gas phase process in which uranium hexafluoride is reacted with dry steam and then with steam and/or hydrogen at a higher temperature is subjected to intense mechanical attrition to increase its packing density, the treated powder is mixed with a limited quantity of binder to produce free flowing particles which, following optional spheroidising by tumbling, are formed into pellets comprising uranium dioxide, and finally the pellets are sintered.” (Col 1, lines 48 to 56).

Claim 18 is hereby amended to recite “[a] process for manufacture of nuclear fuel pellets through sintering of a material containing uranium dioxide UO_2 obtained from a powder originating from a process for a conversion of uranium hexafluoride UF_6 comprising:

obtaining the powder directly by the UF_6 hexafluoride conversion process;
placing the powder in a vessel containing moving, compressing and mixing bodies;
agitating the vessel such that the powder moves within a volume of the vessel in three noncoplanar axes to be compressed between moving bodies and walls of the vessel to form a particulate material having a density in an uncompacted state of at least 1.7 g/cm^3 ; and

shaping the particulate material obtained by agitation in the vessel into raw fuel pellets that undergo sintering

wherein the particulate material is not sieved before shaping and no binder is added to the powder of the particulate material before shaping.” (emphasis added).

Hayes fails to teach or disclose a process for manufacturing nuclear fuel pellets “without adding binder in the vessel” as now required by claim 18. Hayes clearly states that “improved green pellet integrity can be achieved (when compared with green pellets produced by the binderless route) with binder quantities less than 1% by weight.” Furthermore, Hayes fails to teach or disclose a process in which “the particulate material is not sieved before shaping” as now required by claim 18. This is evidenced by the examples referenced on page 3 of the Office Action in support of this rejection which performs a sieving step. For example, “the contents of the drum are then sieved to separate the milled

uranium dioxide powder." (Col. 3, lines 36 to 38). Since Hayes fails to disclose all of the limitations of claim 18, claim 18 is not unpatentable as anticipated by Hayes.

Withdrawal of the rejection of independent claim 18 and claims 20 to 26 and 28 to 30, indirectly or directly independent on claim 18, under 35 U.S.C. §102(b) is respectfully requested.

35 U.S.C. §103 Rejections

Claim 19 was rejected under 35 U.S.C. §103(a) as being unpatentable as obvious over Hayes.

Claim 19 is dependent on claim 18. In light of the discussion above with respect to why claim 18 is not anticipated by Hayes, withdrawal of the rejection of claim 19 is respectfully requested.

Claims 27 and 31 were rejected under 35 U.S.C. §103(a) as being unpatentable as obvious over Hayes in view of Butler.

Claim 27 is directly dependent on claim 18 and claim 31 is indirectly dependent on claim 18. In light of the discussion above with respect to why claim 18 is not anticipated by Hayes, withdrawal of the rejection of claims 27 and 31 is respectfully requested.

Furthermore, there would be no reason or motivation for one of ordinary skill in the art to combine the production of fuel pellets as disclosed in Hayes with the ammonia additive disclosed in Butler. Butler teaches "low density nuclear fuel pellets" (see Abstract) while Hayes teaches "green pellets hav[ing] a considerably higher density." (Col. 2, lines 53 to 54). Therefore, one of skill in the art would not combine Butler's low density fuel pellet for that of a high density fuel pellet of Hayes.

Claims 32 and 34 were rejected under 35 U.S.C. §103(a) as being unpatentable as obvious over Hayes and further in view of Marchand.

Claim 32 is directly dependent on claim 18 and claim 34 is indirectly dependent on claim 18. In light of the discussion above with respect to why claim 18 is not anticipated by Hayes, withdrawal of the rejection of claims 32 and 34 is respectfully requested. Furthermore, both Hayes and Marchand fail to teach or disclose the limitation of “placing the uranium oxide, plutonium oxide powders and additives in the vessel” and “agitating the vessel in a manner that is controlled from outside the containment enclosure” as required by claim 32, and the Office Action fails to assert where such limitations can be found in Marchand. Finally, even if all the limitations were met for claims 32 and 34, which they are not, there would be no reason or motivation to combine the manufacturing of fuel pellet as disclosed in Hayes with the method of controlling the perpendicularity of cylindrical parts of Marchand. The glove box disclosed in Marchand is used for controlling parts for measurements and it would not have been obvious to one of ordinary skill in the art to combine the glove box of Marchand with the disclosure of Hayes to protect against radiation.

Claim 33 was rejected under 35 U.S.C. §103(a) as being unpatentable as obvious over Hayes in view of Bauer.

Claim 33 is directly dependent on claim 18. In light of the discussion above with respect to why claim 18 is not anticipated by Hayes, withdrawal of the rejection of claim 33 is respectfully requested.

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CONCLUSION

It is respectfully submitted that the application is in condition for allowance and applicants respectfully request such action.

If any additional fees are deemed to be due at this time, the Assistant Commissioner is authorized to charge payment of the same to Deposit Account No. 50-0552.

Respectfully submitted,

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